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ABSTRACT

A study determined the impact of a literacy program including social cooperative literacy experiences on literacy achievement of first-, second-, and third-grade children. Treatment in the experimental groups, which consisted of 204 children from 3 first-, 3 second-, and 3 third-grade urban classrooms included designing classroom literacy centers, teacher-modeled literacy activities, and modeled cooperative strategies to use during periods of independent reading and writing. These periods provided a setting for social cooperative literacy activities. The control group consisted of 70 children in one first, one second, and one third grade. Observational data were collected to determine the nature of the literacy and social activities that occurred. Results indicated that children in the experimental groups scored significantly better on tests of comprehension, story retelling and rewriting. Results also indicated differences between grades, with third graders doing significantly better than second graders, and second graders better than first. Observational data revealed literacy activities that occurred such as oral reading, silent reading, and writing. Social behaviors included peer tutoring, peer collaboration, and conflicts. Differences occurred between the grades in the amount of literacy activity and the ability to collaborate and cooperate, with the third graders involved in more literacy activities than the other two grades as well as more peer tutoring and collaboration. (Contains 30 references and 5 tables of data.) (Author/RS)

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ED 406 667

Differences Between Social and Literacy Behaviors of First, Second, and Third Graders in Social Cooperative Literacy Settings

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Abstract

The purpose of the study was to determine the impact of a literacy program including social cooperative literacy experiences on literacy achievement of first, second and third grade children. The study sought to describe similarities and differences in literacy activities and social behaviors at the different grade levels. Treatment in the experimental groups, which consisted of 204 children from three first, three second, and three third grades included; designing classroom literacy centers, teacher modelled literacy activities, and modelled cooperative strategies to use during periods of independent reading and writing. These periods provided a setting for social cooperative literacy activities. Observational data was collected to determine the nature of the literacy and social activities that occurred. An ANCOVA revealed significant differences occurring, with children in the experimental rooms scoring significantly better on tests of comprehension, story retelling and rewriting. There were also differences between grades with third graders doing significantly better than second graders, and second graders better than first. Observational data revealed literacy activities that occurred such as oral reading, silent reading, and writing. Social behaviors included peer tutoring, peer collaboration and conflicts. Differences occurred between the grades in the amount of literacy activity and the ability to collaborate and cooperate with the third graders involved in more literacy activities than the other two grades as well as more peer tutoring and collaboration.

Difference Between Social and Literacy Behaviors of First-Second- and Third-Graders in Social Cooperative Literacy Settings

Researchers have found that social interaction and collaboration within small groups of students promotes achievement and productivity (Yager, Johnson, & Johnson, 1985). The integrated language arts perspective encourages cooperative learning as an important part of reading and writing instruction (Bergeron, 1990; Goodman, 1989; Teale, 1984). Studies dealing with literacy development reveal that cooperative learning settings promote achievement, higher-level cognition and intrinsic motivation (Almasi, 1993; Morrow, 1992; Slavin, 1983). For these reasons, social collaboration is viewed as a critical dimension for motivating reading and writing. According to motivation theory, social collaboration plays a strong role in promoting task engagement and achievement of goals among peers (McCombs, 1989; Oldfather, 1993; Spaulding, 1992).

Cooperative learning strategies selected for implementation are often determined by ones' theoretical beliefs (O'Donnell & O'Kelly, 1994). The social and cognitive development of children should be considered as a variable when designing cooperative learning techniques. Most studies involving cooperative learning have been implemented starting at third grade with little information on the effects of the strategy with young children (Stevens & Slavin, 1995). In addition there is little information available concerning differences between children's social behavior and literacy achievement in cooperative settings at various grade levels. There has been an emphasis on designing

instruction based on developmentally appropriate practice. This implies that classroom techniques need to be adapted for the maturational needs of children, in this case young children. Based on these concerns the goals for this study emerged.

The Purpose of the Study. The purpose of this investigation was to describe the similarities and differences in social behavior and literacy activities of children in first, second, and third grade when participating in cooperative literacy settings. The specific questions asked were:

(1) What is the impact of cooperative learning in a literacy program, on the literacy achievement of children in first, second, and third grade?

(2) Are there differences in literacy achievement between first, second, and third graders who engage in cooperative literacy experiences?

3) What is the nature of the social behavior and literacy activities of first, second, and third-grade children during reading and writing periods with cooperative learning settings?

(4) Are there differences in the social behavior and literacy activities at the three grade levels?

Positive Characteristics Associated With Cooperative Learning

The aim of cooperative learning is to bring children together so they can teach and learn from each other through discussion and debates. According to investigators cooperative learning succeeds because it allows children to explain material to each other, to listen to each others'

explanations, and to arrive at joint understandings of what has been shared (Yager, Johnson & Johnson, 1985). Cazden (1986) posited that peer interaction allows students to try out roles they would be denied in traditional student teacher structures. In the cooperative setting, for example, more capable peers tutor others in their group by guiding and correcting, thus we find high and low achievers working together. Many students are able to accomplish together what they could not do alone.

In cooperative learning settings children from diverse ethnic backgrounds, children with special needs (e.g., physical, emotional, and learning disabilities), and social isolates are more likely to be accepted than in traditional classroom structures (Johnson & Johnson, 1981; Kagan et al., 1985).

Developmental Theory and Cooperative Learning

We should expect some variation in how children at different ages learn and behave in cooperative settings. Vygotsky's (1978) sociocultural theory predicts that when children engage in cooperative dialogue with more competent peers, they take the language of these interactions, make them a part of their inner speech, and eventually use these independently to organize their thoughts. The two critical features of this peer interaction that promotes cognitive development are intersubjectivity and scaffolding (Berk, 1990). Intersubjectivity refers to the way that students begin with different viewpoints and arrive at a shared understanding by adjusting to the perspective of each other (Newson & Newson, 1975). Scaffolding refers to the

assistance provided by the more competent peer through explanations, demonstrations, or verbal prompts which are adjusted to meet the needs of the other partner.

Both scaffolding and intersubjectivity require the ability for a child to take another's perspective. Based on Piagetian theory, preoperational children have more difficulty with perspective taking than concrete operational children (Piaget, 1959). Using Selman's stages of perspective taking (Selman, 1976; Selman & Byrne, 1974) we would expect preschoolers (ages 3 to 5) to begin to recognize that their thoughts and feelings are different than others', but still confuse the two. Children making the transition into concrete operational thought (about ages 4 to 9) begin to understand that people have different perspectives based on their access to different information. Gradually (about ages 7 to 12) children begin to view their ideas, and behaviors from the perspective of someone else and also understand that others can do the same (Berk, 1994).

To work effectively in groups students need specific social skills that develop over the years. (Johnson & Johnson, 1981). Therefore we can expect that children at different ages would vary in the benefit they would receive from cooperative learning experiences. We may find that until children are able to hold their own point of view and that of another person at the same time, they may not be able to benefit from the discussion and coordination of perspectives in cooperative learning (Tudge & Rogoff, 1989). We need to determine if children at different

ages function better in cooperative learning with different amounts of structure, teacher scaffolding, and materials.

In this study, the value of cooperative experiences, within an integrated language arts framework was of particular interest. We examined the similarities and differences in social behavior, literacy activities, and literacy achievement of children in first, second, and third grade when participating in cooperative literacy settings. The cooperative learning techniques used were similar to **Group Investigation** (Sharan & Hertz-Lazarowitz, 1980) and **Learning Together** (Johnson & Johnson, 1981) in which groups take responsibility for the topics they work on, how they work together, and how they present information. Developmental levels in social skills, are critical in the cooperative learning settings mentioned since they require social cohesion (O'Donnell & O'Kelly, 1994). Most studies about cooperative learning are with children in middle and upper elementary grades, this study focuses on the early childhood years.

Methods

Subjects- There were 12 classrooms randomly selected for one experimental and one control group. The children in the experimental group were from three first-(N=65), three second (N=71), and three third grade (N=68) classes, for a total of 204 children. There were 70 children in the control group, from one first (N=22), one second (N= 25) and one third grade (N=23). The children in the study were from two schools in an urban district where 95 percent of the children were from minority backgrounds

(African-American and Latino) and five percent were Caucasian.

Procedures

In the pre-intervention phase of the study, which began in October, comprehension and writing tests were administered. In November observations were conducted in the experimental rooms once a week through March of the intervention period. In May the measures given prior to intervention were again administered to all children, this time as posttests.

Treatment

The theories of Holdaway (1979) and Cambourne (1988) were reflected in the literature-based program in this study, and the cooperative learning approaches of Group Investigation (Sharan & Hertz-Lazarowitz 1980 and Learning Together method (Johnson & Johnson, 1987. In the Group Investigation model children form their own groups, and select topics from units being studied. The groups work on individual projects and come together to report. Evaluation focuses on what children learned and how well they worked together. Learning Together is similar to Group Investigation, but places more emphasis on building social skills for successful group work.

In this study children were provided with opportunities to (a) observe literacy behaviors by adults who modeled literacy activities; (b) collaborate and interact with adults when using literature activities; and (c) practice skills taught, by being immersed in periods for social cooperative reading and writing with peers, to learn to work together and complete tasks. With

this in mind the program components included the following elements to allow for cooperative learning to occur.

(1) Literacy Centers were designed to provide space and materials for cooperative activity. They contained five to eight books per child at three to four grade levels that represented varied genres of children's literature. There were pillows, rugs, stuffed animals, and rocking chairs to add comfort. Other materials included literature manipulatives such as feltboard stories, puppets, and taped stories with headsets and an "Authors Spot" with paper, blank books, and writing utensils.

(2) Teachers-modeled literature strategies to motivate children's desire to participate in using the materials. The literature activities included reading aloud to children, telling stories using techniques such as chalk talks, prop stories, and roll stories; the materials found in the literacy centers. Teachers engaged children in retelling and rewriting stories, creating original stories, and sharing books read.

Teachers also modeled strategies for working together in cooperative settings to learn to (a) form working groups, (b) decide on activities for groups to participate in, (c) assign jobs within groups, (d) support each other in solving problems, (e) evaluate how well groups worked together, and (f) evaluate how well they completed their jobs.

(3) Literacy Center Time (LCT). Literacy Center Time was carried out three to five times a week. These Literacy Center Times were for cooperative learning projects. During this 30-

minute LCT children were allowed to choose from a variety of literacy activities to participate in such as: read to a friend, listen to a taped story, write a story, do a puppet story, etc. They could choose with whom they would like to work. They were instructed to stay with their groups until activities were completed. Time was spent discussing rules for cooperating, such as taking turns, sharing materials, helping each other, and being sure that everyone was involved. Completed activities were shared and evaluated, as was the cooperative behavior.

The program in the treatment rooms complemented basal reading instruction used in the district. The control rooms reading instruction was with basal materials. They did not have cooperative learning settings for literacy activities. The same amount of time was spent on literacy instruction in all rooms.

Collection of Data

Tests of Literacy Achievement. To measure literacy achievement three quantitative tests were administered to all students individually by a research assistant prior to the treatment beginning and at the end of the study. Comprehension was measured using a Probed Recall Test including questions requiring students to use literal, inferential and critical thinking skills along with sense of story structure, and the ability to sequence. A Story Retelling and Rewriting Test demonstrating the ability to construct meaning by relating parts of a text to one another were also used (Morrow, 1992).

Observational Data. Observational data were collected once

a week for five months during the school year, from November through March, in each of the nine experimental classrooms. For the analysis, there were 15 thirty-minute observations, per classroom for a total of 135, with 45 at each grade level.

The purpose for the observational data was to monitor the activity in the experimental groups to be sure teachers were carrying out their programs as intended. We were also interested in finding out how the intervention led to the outcomes.

Research Assistants conducted broad scans around the room every 15 minutes, or twice during the 30 minute Literacy Center Time in the first, second, and third grades. They recorded the types and number of literacy and social activities observed using a checklist to help determine what occurred in children' groups from a literacy and social perspective. In addition there were two in depth, minute by minute observations recorded during the Literacy Center Time for a total of 30 at each grade level, to determine the nature of the social and literacy activities. The two in depth descriptions of episodes that occurred, included how students selected activities, how they interacted, and what literacy activities took place. Episodes were followed from beginning to end and included dialogue. These observations were to be a "Stream of behavior chronicle," representing a minute-by-minute account of what subjects did and said (Baker, 1963). Children were interviewed about their perceptions of the program. In the interviews children were asked: (a) how they felt about working together during Literacy Center Time, (b) what they liked

about working together, (c) what they didn't like about working together, (d) what activities they chose when working together, and (e) how they thought Literacy Center Time could be improved.

Adapting a research procedure used by Miles and Huberman (1984) data was collected and analyzed. From the recorded episodes of activities that occurred during Literacy Center Time, categories of social and literacy behavior emerged. When categories were identified, their frequency of occurrence was recorded. It was found that some episodes could be placed in more than one category. If so, they were coded more than once. The recorded episodes provided detailed descriptions concerning the nature and type of social and literacy activity occurring

To determine reliability in categorizing episodes, six individuals who were not participating in the project were asked to code the same recorded observations of Literacy Center Times. One in depth minute by minute observation from each of the nine classes in the treatment rooms was used. The coders were told the purpose of the study and given definitions of the categories. They were shown how to categorize the episodes and given the data to analyze. The reliability check indicated 85% to 90% agreement among the coding decisions across all categories. A reliability check of classroom scans for identifying literacy and social behaviors yielded a 92% agreement among coders when 6 individuals coded the same six rooms at the same time.

Results

Literacy Achievement Measures. Two sets of analyses were done with the literacy achievement measures. First we compared differences between experimental and control groups. Next we determined if there were differences between the experimental groups at the first, second, and third grade levels on literacy achievement.

For the first analysis there were two groups, experimental vs. control. The data was analyzed though the use of a one way analysis of covariance. In the analysis, the pretests served as a covariate and the posttests were the dependent measures. On all measures the tests for homogeneity of the within group regression, an assumption of the analysis of covariance (Winer, 1971), were not significant. In the second analysis there were three groups. The purpose was to determine if there was a difference in literacy achievement between the first, second, and third grades. A one-way ANCOVA was used for this data. Since there were three groups, post hoc comparisons were carried out using Bonferroni's adjustment on the least squares estimate of means to determine which between group differences were significant.

Experimental Vs. Control. Table 1 presents the pre- and posttest means and standard deviations for the literacy measures: Probed Recall Comprehension, Story Retelling and Written Retelling tests for the experimental and control groups. On all three tests, the experimental groups scored significantly better

than the control. The ANCOVA for the score on the Probed Recall Comprehension test was $F(1, 208)= 10.35$, $p < .001$, the Story Retelling was $F(1, 208)= 7.64$, $p < .006$, and the Story Rewriting was $F(1, 208)= 8.09$, $p < .02$.

Comparisons Between First, Second, and Third Grades. Table 2 presents the means and standard deviations for the literacy measures: probed comprehension, story retelling and written retellings for the first, second and third grade groups. In two of the three tests, there were significant difference.

The ANCOVA for the scores on Probed Recall Comprehension Test $F(1, 198)$ 8.26, $p < .004$ and for the Story Retelling Test $F(1, 198)$ 5.59, $p < .004$ were significant. The ANCOVA for the Story Rewriting Test was not significant $F(1, 198)$ .49, $p < .63$ NS. Post hoc comparisons on the Probed Recall Comprehension Test and the Oral Retelling Test indicated that all three groups were different from each other with third grade making the most significant gains, second grades next, and first grade the least. There were no differences between the three grades concerning the scores on the Written Retelling Test.

Analysis of Observational Data

Each of the treatment rooms was observed during 15 Literacy Center Times, the cooperative literacy period. There were two broad scans around the room during each of the half hour Center Times which enabled us to record the literacy and social activities observed. In addition there were two in depth minute by minute observations recorded for a total of 30 at each grade

level. These observations revealed the nature of the social and literacy activity within groups.

The broad scans at the three grade levels found children participating in similar literacy behavior. Children engaged in oral reading, silent reading, and writing. Broad scans at the three grade levels also revealed that children did form groups and worked together. The groups at the different grade levels were characterized by different gender configurations and size.

The nature of the social activity and literacy activity within groups was described through the minute by minute observations. These data revealed that peer tutoring, peer collaboration, and conflicts occurred as children engaged in oral reading, silent reading and writing.

Composition of Peer Groups. Table 3 includes information from the broad scans around the room done at 45 Literacy Center Times in the treatment rooms. The Table includes the frequency of occurrence of the types of peer groups formed and the numbers of students in the different group formations.

Groups formed in first- grade were smaller than those formed in second and third grade. First graders worked most often in groups of two. Second and third graders worked more often in groups of three and four. When groups were larger than five they became dysfunctional. Mixed gender groups were most common in first grade. Second- and third-graders had mixed gender groups, but single gender groups were more common at these grade levels. Some children chose to work alone.

Social Behavior in Groups. Table 4 provides information from the in depth, minute by minute descriptions of the social activity at the three grade levels. When involved in literacy activities within groups students engaged in the following social behaviors: peer tutoring, peer collaboration, and conflict. The Table 4 includes the frequency of occurrence of peer tutoring, peer collaboration, and peer conflict. Peer tutoring and peer collaboration occurred most in third grade, next in second, and least in first. Conflict occurred most in first grade, next in third, and least in second.

Peer tutoring was characterized by children assisting each other academically, with one child taking the role of teacher.

The following episode illustrates peer tutoring:

Jason and Tiffany were in a cozy area of the library corner, each holding a stuffed tiger. Although both children were assigned to basic skills classrooms, in the present situation Tiffany assumed the role of teacher to help Jason, who had started looking through a book of nursery rhymes.

"Let's read this one," Tiffany said. Jason agreed, and Tiffany told him to begin reading. " I forgot the first word. What does H-E-Y say?" "That says, 'Hey diddle diddle'" said Tiffany. "Now you read." Jason continued, "The cat and the ..."He paused, and Tiffany said, "Look at the letter, it's an F. F. It says 'the fiddle.'" "Oh," said Jason,"...the fiddle. The cow jumped over the moon. Let's do another one." Tiffany said okay. They turned the page and Jason began to read: "Little Betty Blue lost her shoe." "Wait," Tiffany interrupted, "You gotta read the title first."

Peer collaboration was characterized by two or more children working together to attain a common goal. It differed from peer tutoring in which one child took the role of teacher and instructed others. In peer collaboration children worked on a

task together and they helped each other equally to complete it. The following is an example of peer collaboration:

Rachel and Tashiba decided to do a feltboard story together. Rachel said, "I want to do this one. The Tortoise and the Hare." Tashiba said, "Let's do this one, Rumpelstiltskin." "I know," said Rachel, "We'll do them both."

They decided to do Rumpelstilskin first. Manita and Chabela joined them, but sat silently and listened while Rachel read the story and Tashiba manipulated the cutouts on the feltboard At the end of the story, Namita asked if she and Chabela could read to Rachel and Tashiba. Everyone seemed pleased. As Manita read, Chabela manipulated the figures, and Rachel and Tashiba listened.

Peer conflict was evident in the group interactions. The occurrence of conflict and its resolution, brings children to higher levels of understanding (Tudge & Rogoff, 1989). When children have different points of view, they begin to see that there are different perspectives that may not easily fit into their preexisting ideas. Cognitive advances occur as children reach a resolution to their own internal cognitive conflict. There were two kinds of conflict observed in the groups. There was **social** conflict characterized by an intrusion of personal space and use of materials. This conflict often occurred in the beginning stages of a project when decisions were being made as to who would do specific activities. It also occurred when children wanted a material such as a particular colored marker that was being used by someone else. The other type was **academic** conflict that involved solving problems such as deciding on the correct selling of a word or identifying a word. The following is a sample of an academic conflict.

Tasha and Tamika decided to write a story together abut a king and a queen. Tasha said, "We have to begin with 'Once upon a time the king and queen lived in a castle.'" She wrote the sentence, but spelled castle K-A-S-A-L. "You spelled castle wrong," said Tamika. "It's C-A-S-T-L-E, not K-A-S-A-L." Tasha responded, "mine sounds right and yours doesn't." "Yours does seem like it's right," said Tamika, "But spelling is silly sometimes and I'm right."

I'll get the dictionary and prove you are wrong." said Tasha. She looked under "K" for castle and couldn't find it, so reluctantly she looked under "C" and found castle as Tamika had spelled it. "Okay," she said, "You're right. But it still doesn't look right."

Grade Differences in Peer Tutoring , Peer Collaboration and Peer Conflict. The minute by minute observations revealed the characteristics of peer tutoring, peer collaboration and conflict at the different grade levels. First graders collaborated with and tutored each other, but often sought the help of the teacher before trusting each other's judgment or trying to work things out on their own. They rarely went beyond their own group for help; they went right to the teacher instead. They needed to depend upon her more than each other for assurance. Second graders were very helpful and patient with each other whether in a tutoring situation or collaboration. They relied on other's judgement and sought each other's help rather than always going to the teacher. In third grade the level of tutoring and collaboration became more sophisticated. Children did depend upon each other and trust each other's judgment. They also went to reference material such as dictionaries, resource books or encyclopedias, for help. Children helped each other with spelling, reading unknown words, creating stories, and explaining

how to use materials, or get a particular job done.

Both social and academic conflicts were recorded. In first grade resolution of conflicts most often resulted from teacher intervention, second graders came next with teachers having to help solve more of their conflicts than they were able to do alone, and third graders solving more conflicts alone and needing the teacher the least. Social conflict occurred most in first grade, next in second, and least in third. Academic conflict was the opposite with the most occurring in third grade, next in second and the least in first.

Literacy Behaviors. Table 5 provides the frequency of occurrence of types of literacy activities observed from the broad scans around the room. From these observations we found that children engaged in (1) oral reading, (2) silent reading, and (3) writing. The following description of literacy behavior comes from the minute by minute accounts of the two episodes recorded for the 135 Literacy Center Times observed. The amount of time spent on literacy tasks increased with grade level.

Oral Reading occurred more often in first grade, than in second and least frequently in third. Oral reading was observed in a variety of forms. Student read out loud to each other while sitting in the literacy center. Often students acted as teachers and read to a group. Children read their stories to the class and used literature manipulatives, such as a felt story. In this situation one child read the book aloud while the other moved the figures on the felt board.

Silent Reading occurred more often with second and third graders than in first. The most common type of silent reading observed was children curled up on the rugs snuggled on pillows, or against each other as they read in the literacy center, at their desks, under tables, in closets and on the floor.

Writing was observed to occur a similar amount of times at all grade levels. Children seemed to do most of their writing in collaborative groups. Some writing projects lasted the whole Literacy Center period, or continued into the next day. Upon completion of a project students presented them to the class by reading them, and through the use of such literature manipulatives as puppets, roll movies, plays, and chalk talks.

To illustrates the results discussed, the following episodes include examples of the literacy and social behaviors reported. There is an example of writing along with academic conflict in a first grade episode, silent reading with peer tutoring in a second grade episode, oral reading with peer collaboration in a third grade episode. Differences observed between grade levels described in the results just presented are evident. The first graders seek help from the teacher to solve their problem, the second graders depend upon each other for help, as do the third graders who also consult available references.

First Grade: Peer Conflict and Writing

Lisandra and Juan were writing a story together about a "Terrible, Horrible, No Good, Very Bad Day, " based on the story by Judith Viorst. Juan was doing the writing and Lisandra said,"You have too many **r's** in the word terrible. You need to change it because I don't think it's right. It is only one **r** ."

"No," said Juan, "I think that there are three." "No, No, No," said Lisandra, there is only one." Let's ask Mrs. Smith how to spell it. " Mrs. Smith suggested that they look at the book that had the word terrible in it. The children found the spelling on the front cover of the book. Lisandra said, "We were both wrong. There are two **r's**." Juan said, "No Lisandra, we were both close."

Second Grade Sample: Peer Tutoring and Silent Reading

Christine, Gilbert, and July were sitting on the rug together, each reading his or her own book silently. July said, "I don't know this word." Gilbert put his finger on the word and said to July, "Now sound it out, say it with me. It says 'enn-ter.' It's enter. You don't hear the 'e' at the beginning. "Oh," said July, and she continued. July came to another word and needed help. Gilbert was anxious to offer support, and said, "I think that's 'alive.' Is that right, Christine?" The children agreed that it was 'alive.' Gilbert told July to go on reading, saying, "I'll help you with hard words if you get stuck. Don't worry." He helped as she needed assistance.

Third Grade: Peer Collaboration and Oral Reading

Rosa, Elizabeth and Gilbert were doing a chalk talk of Harold and the Purple Crayon. Rosa held the book and read, and Elizabeth and Gilbert took turns drawing. Elizabeth asked how she could make a better boar, and Gilbert suggested if she make it a sailboat, it might be better. They looked at the book to help improve their drawing. Gilbert got another book about boats to look at the ideas. Even though Rosa was reading, she watched the drawing and suggested that the water would look good with waves. She showed the children the waves in the book. The others looked and agreed and make the water wavy. When they finished the story, Rosa asked if Elizabeth would read the story again, so she could have a turn to do the drawing, They agreed

Interview Data. The interviews with the 204 students in the treatment groups concerning their attitudes about cooperative learning during Literacy Center Time were somewhat similar across grade levels. The data were pooled and the following represent the responses of all children.

* All children described Literacy Center Time as fun.

* Children expressed that what they liked the most was reading to and with friends.

* Most children mentioned that they liked using the literature props such as roll stories, felt stories, and puppets.

* Although this was mentioned at all grade levels, more children in the third grade said that they were learning to read better since they were practicing reading and writing and getting help from their friends.

* They all expressed the desire to make the social interactive Literacy Center Time longer.

* Some children mentioned that the noise during Center Time was sometime bothersome.

* Second and third graders talked about children who were bossy during Literacy Center Time.

* The children reported that they liked working with their friends in groups.

* All children mentioned they liked the cozy comfortable literacy center.

Discussion

Properly planned and implemented, Literacy Center Time the cooperative learning literacy setting, encouraged students to form groups and engage in literacy activities. Students read orally and silently, wrote stories and told stories using the literature manipulatives available to them. As they engaged in literacy activities in this social setting, they developed their own rules and leadership patterns. In the groups that formed, peer collaboration, peer tutoring, and conflicts, occurred within the literacy activities.

There were similarities and differences in social-collaborative behaviors of the first-, second-, and third-graders however, motivation to participate in literacy activities during the Center Time was similar at all levels. Children greeted the period with enthusiasm, and worked on task most of the time. First-graders took more time to get settled and on task, and needed more of the teacher's attention during a Literacy Center Time however at all grade levels children were able to engage in literacy activities in a social- collaborative manner. The literacy achievement data revealed that first, second, and third graders in the experimental group did significantly better than control groups, however there were differences in the treatment groups on these measures, with third graders increasing most, second graders next, and first graders the least.

The observational data suggests that collaboration, and peer tutoring increased with grade level, and that conflicts decreased with grade level. There was more social conflict with younger children and academic conflict with the older students. Older children were able to handle the cooperative setting with more independence than the younger children.

It appears from the data that the older children benefitted more from cooperative learning experiences based on their performance on the literacy measures and how they conducted themselves in groups. The rationale for these results may be that as children develop the ability to take another person's perspective, they can benefit more from the experience of

creating a common viewpoint and resolving inner cognitive conflict. Children moving out of the preoperational period will have more difficulty in accommodating to other's viewpoints, perhaps not even recognizing that there can be a different perspective. The first graders who were the youngest children in this study however, were still able to benefit from the cooperative learning experiences. They were able to engage in peer tutoring and peer collaboration, and seemed to prefer to work in groups of two rather than larger groups. Perhaps their cognitive and social skills are developed enough to create a joint understanding of a project with one other person, but not yet developed enough to accommodate the needs and ideas of three or four children. The study also revealed that fewer conflicts occurred in third grade than in first, and second. Also as children got older, less social conflict took place and more academic conflict occurred.

We cannot tell from this data the role of development versus the role of experience in helping children learn the social skills necessary for successful cooperative group work. Since first graders were able to benefit from cooperative learning experiences, it would be valuable to look longitudinally at the development of children in third grade experiences in peer learning compared to third graders that have not had peer learning experiences in the past.

Cooperative learning is a valuable instructional technique for early literacy development. Reading and writing are

communication skills and as such require a great deal of shared understanding and perspective taking. For example, writing for a particular audience, or analyzing an author's point of view requires the ability to take another's perspective. Cooperative learning experiences provide a developmentally appropriate way for children to grow in intersubjectivity and increase their comprehension, and writing skills.

Educators are often reluctant to allow children to make decisions about their own learning and participate in cooperative learning settings especially in the early childhood grades. Teachers are concerned that these settings reduce their control and the amount of learning that takes place. The results of this study challenge those concerns. They indicate, that in a social collaborative context, young children in first, second, and third grade will engage in productive, self-directed, socially interactive literacy activities and increase their achievement in literacy skills as well.

Teachers need to be aware of how children at different grade levels behave in social settings as revealed in this study. The knowledge of their behavior will allow us to have appropriate expectations for literacy achievement, and the manner in which children socially interact based on their level of development. The knowledge of their behavior will also help to structure developmentally appropriate settings for cooperative learning to take place with the greatest success, which will have slightly different characteristics at different grade levels.

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Table 1

Means and Standard Deviations for Experimental and Control Groups on Literacy Tests

	Group							
	Experimental				Control			
	Pretest	(SD)	Posttest	(SD)	Pretest	(SD)	Posttest	(SD)
Probed Comprehension	14.63	(5.68)	18.66	(5.37)[a]	15.84	(7.70)	16.37	(6.90)[b]
Story retelling	6.10	(3.39)	7.60	(3.39)[a]	6.25	(2.89)	6.87	(3.60)[b]
Story Rewriting	6.29	(1.95)	9.04	(1.22)[a]	6.14	(2.87)	7.11	(3.25)[b]

Note: Posttest means are adjusted for pretest scores.
n = 274 for each group
a,b - Posttest scores are significantly different ($p<.05$) if they do not share the same subscript.

Table 2

Means and Standard Deviations on Literacy Tests Between Grades

	Group											
	First Grade				Second Grade				Third Grade			
	Pretest	(SD)	Posttest	(SD)	Pretest	(SD)	Posttest	(SD)	Pretest	(SD)	Posttest	(SD)
Probed Comprehension	11.00	(2.79)	15.83	(2.08)[a]	14.00	(2.42)	19.00	(2.00)[b]	14.51	(2.74)	20.75	(3.21)[c]
Story Retelling	4.58	(3.33)	5.44	(3.35)[a]	6.84	(2.48)	8.22	(3.66)[b]	7.17	(3.41)	8.67	(3.71)[c]
Story Rewriting	4.91	(3.43)	8.25	(3.38)[a]	5.78	(3.53)	9.29	(2.80)[a]	6.14	(3.89)	10.17	(3.62)[a]

Note: Posttest means are adjusted for pretest scores.
n = 204 for each group
a,b,c - Posttest scores are significantly different ($p<.05$) if they do not share the same subscript.

Table 3 Frequency of Occurrence of Group Formations in First, Second, and Third Grades

Grades	3- First	3- Second	3- Third
Number and Type of Group in 15 observations per room with 2 scans around each room			
Groups of two children	66	55	43
Groups of three children	41	48	60
Groups of four children	22	30	35
Groups of five children	2	3	15
Children Working Alone	25	30	60
Mixed Gender Groups	64	46	32
Same Gender Groups	67	90	121

Table 4 Frequency of Occurrence of Social Behaviors in First, Second, and Third Grades

Grades	3- First	3- Second	3- Third
Number and Type of Social Behavior in 15 observations per room with two in depth episodes per room			
Peer Tutoring	46	71	94
Peer Collaboration	114	176	193
Social Conflict	60	44	30
Academic Conflict	44	52	60

Total Number of Conflicts	104	96	90

Table 5 Frequency of Occurrence of Literacy Activities in First, Second, and Third Grades

Grades	3- First	3- Second	3- Third
Frequency of occurrence of literacy activities in 15 observations per room with 3 sweeps around each room			
Oral Reading	233	202	180
Silent Reading	82	140	182
Writing	104	110	136